

REMARKS

Receipt of the Office Action mailed October 1, 2008 is hereby acknowledged. With this amendment, claims 1-9 and 14-15 are pending and under consideration.

Claim 1 has been amended to recite more conventional U.S. claim language (e.g. deleting "characterised in that"), and to more particularly point out that the dinitramide salt is precipitated from an acidic (not neutral) solution (see, specification, p. 2, lines 6-10).

Claims 2-8 have also been amended to recite more conventional U.S. claim language.

Claim 9 has been amended to recite that the added positive ion from step (2) is recovered and is re-used in the production of dinitramide salts. This amendment is supported in the specification, at page 4, lines 5-8, which describes recirculation and reuse of the initially used positive ion (guanyluurea).

Claims 10-13 have been cancelled without prejudice.

New claims 14 and 15 are supported in the specification generally and specifically by Examples 1 and 2, respectively.

No new matter has been added.

Rejection Under 35 U.S.C. § 102(b)

The Examiner has rejected claims 1 and 2 under 35 U.S.C. § 102(b) as allegedly anticipated by Langlet, et al., U.S. Patent No. 5,976,483 ("Langlet I"). The Examiner writes that:

"Langlet I discloses a method of preparing [a] dinitramide salt, comprising:

- Providing an initial compound, reacting said initial compound with a nitrating acid mixture to form dinitramidic acid in the reaction mixture,
- Neutralizing said dinitramidic acid with a neutralizing agent to form the corresponding dinitramide salt and
- Recovering said dinitramide salt.

Langlet I teaches that the neutralizing agent can be made of a number of formulae, one of which is salt **AX**, wherein **A** is a metal ion or a nitrogen containing cation (see column 2, lines 45-46). **A** thus satisfies the requirement of being a positive ion added to the reaction mixture. The neutralizing agent also forms an ion pair complex with dinitramidic acid as illustrated in the reaction formulae in column 2. The neutralizing agent, thus, can be considered equivalent to the positive ion. The dinitramide salts formed can be recovered by a plurality of techniques such as precipitation and elution through a column."

(Office Action, pp. 2-3) ((some citations omitted)). Applicants traverse this rejection.

The present invention is directed to a method of producing a salt of dinitramidic acid, comprising nitration of an initial compound with a nitrating acid mixture to form dinitramidic acid in an acidic reaction mixture, and the subsequent addition of a positive ion to the acidic reaction mixture, which includes the newly formed dinitramide ion. The dinitramide ion and the positive ion form an ion pair complex which then precipitates from the acidic mixture.

Langlet I discloses a method of preparing dinitramide salts by nitration of an initial compound to form dinitramidic acid (e.g., col. 1, lines 52-59). The dinitramidic acid is not stable in the acidic environment and the reaction mixture must be neutralized by the addition of a neutralizing agent to the reaction mixture (see, col. 2, lines 21-23, and, col. 1, lines 46-51). This may be accomplished by the addition of a cold water bath (col. 2, lines 28-31) and adding potassium hydroxide (col. 2, lines 4-14). In order to form the dinitramidic salt, the reaction mixture must be neutral or weakly basic (col. 4, line 67). The salt is eventually recovered from the reaction mixture by adsorption and subsequent elution and evaporation (col. 3, lines 31-49).

The presently claimed method involves the precipitation of a salt of dinitramidic acid from an acidic reaction mixture.

By contrast, Langlet I discloses a process for making a dinitramidic salt from a neutral or weakly basic reaction mixture. That a possible neutralizing agent used by Langlet I might be a salt AX (col. 2, lines 43-48) does not change the fact that Langlet I requires a neutral or slightly basic reaction mixture in order to form the dinitramidic salt. Thus, the process taught by Langlet I is different from the presently claimed method. Consequently, applicants respectfully request reconsideration and withdrawal of the anticipation rejection.

Rejections Under 35 U.S.C. § 103

The Examiner has rejected claims 3-6 and 9-12 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Langlet I as applied to claims 1-2 in view of Langlet, U.S. Patent No. 6,291,711 ("Langlet II"). Applicants respectfully traverse this rejection.

First, as discussed above, Langlet I fails to disclose or suggest precipitation of the dinitramidic salt from an acidic solution. Langlet II does not remedy this defect. Because Langlet I teaches the addition of a neutralizing agent to neutralize the dinitramidic acid for formation of the dinitramidic salt in a weakly basic reaction mixture, it would not have been obvious to substitute the nitrogen-containing

cation of Langlet I with the protonated guanylhrea of Langlet II in Langlet I's method. Accordingly, applicants submit that the obviousness rejection should be reconsidered and withdrawn.

With regards to claim 9, the Examiner asserts that:

"Langlet I teaches that a dinitramide salt, ADN, for example, can be prepared from another dinitramide salt like KDN (see column 4, line 6) and Langlet II teaches that guanylhrea dinitramide can be made from a guanylhrea salt (see example 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute a dinitramide salt with the separated precipitate (guanylhrea dinitramide) and arrive at a different dinitramide salt as taught in Langlet II, in the method of Langlet I, motivated by the fact that it is a simple ion exchange process."

(Office Action, pp. 4-5). Pending claim 9 is directed to the preparation of other dinitramide salts from the precipitated and separated dinitramide salt as prepared by the method of claim 1, where the added positive ion from step (2) is recovered and can be re-used in the preparation of new dinitramide salts. Nothing in either Langlet I or Langlet II, alone or in combination with one another, teaches or suggests the recycling of the positive ion in this way. Accordingly, the rejection of claim 9 under § 103 should be withdrawn.

Claims 7 and 8 have been rejected under 35 U.S.C. §103 as allegedly being unpatentable over Langlet I and Langlet II and further in view of Seyerl, U.S. Patent No. 4,559,409. The Examiner relies principally on the combination of Langlet I and


Langlet II as described above, with Seyerl as showing the use of cyanoguanidine. However, for the reasons set forth above, the combination of Langlet I and Langlet II does not teach or disclose the subject matter of claim 1, from which claim 8 depends, and Seyerl does not remedy those deficiencies. Therefore, this rejection should also be withdrawn.

Conclusion

It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for examination on the merits. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

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